Project Baseline Summary Report

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Albuquerque** Print Date: **3/9/2000**

Site Summary Level: **Uranium Mill Tailings Projects - Groundwater** HQ ID: **0477**

Project **AL023 / UMTRA Ground Water**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The scope of this project is to ensure protection of human health and the environment from ground water contaminated by past uranium processing operations. Each of the 22 inactive uranium-processing sites will be characterized to determine the necessary compliance strategy. The possible strategies include: no further remediation, natural flushing, or active compliance. Once a strategy has been determined for each site, regulatory approval will be acquired from NRC, the strategy will be implemented, and the site may be monitored for a sufficient period to ensure compliance. Proposed strategies are: three sites are active remediation, nine sites are natural flushing, and 10 sites require no further remediation. Baseline Risk Assessments and initial Site Observational Work Plans have been completed for most sites. Field investigations are progressing at sites requiring additional data on a priority basis.

Technical Approach: Site-specific strategies have been targeted using present knowledge of the sites. The compliance strategy approaches are:

(1) No Further Remediation - which could be used at sites that do not have ground water contamination above the maximum concentration limits (MCLs) and/or background levels; or at sites that have ground water contamination above MCLs and/or background levels, but qualify for supplemental standards or alternate concentration limits (ACLs). Some sites may qualify for supplemental standards because the ground water is considered "limited use" due to preexisting ambient contamination. Use of this strategy could involve a demonstration of compliance and, in some cases, additional site characterization.

(2) Natural Flushing - passive ground water remediation that does not involve manipulation of ground water flow, quantity, or quality. Natural flushing could be the selected remedy at sites where compliance with the ground water standards would occur within a period of 100 years or less; where adequate monitoring and institutional controls could be established and maintained throughout the flushing period; where institutional controls could result in conditions that were protective of human health and the environment; and where the ground water was neither a current nor a projected drinking water source.

(3) Active Remediation - could be used at sites where methods such as gradient manipulation, ground water extraction, and in-situ ground water treatment are required to meet ground water standards.

Eight sites are completed: Ambrosia Lake, New Mexico; Falls City, Texas; Lowman, Idaho; Maybell, Colorado; Riverton and Spook, Wyoming; Salt Lake City, Utah; and Cannonsburg, Pennsylvania. Two sites have been removed from the project: Belfield, North Dakota, and Bowman, North Dakota. Fourteen sites remain to be completed.

Project Status in FY 2006:

Sites that have been determined to require no further remediation will either be closed out or transferred to the Long-Term Surveillance and Maintenance (LTSM) Program for long-term monitoring. These are sites where ground water contamination does not exceed maximum concentration limits or background, or sites where supplemental standards or alternate concentration limits have been applied. Many of the sites will be transferred

Project Description Narratives

to the LTSM Program for long-term monitoring. Sites requiring active ground water remediation will be retained in the UMTRA Ground Water Project until FY 2011 (if not remediated prior to this data), at which time they will be transferred to the LTSM Program. Presently, three sites are proposed for active remediation: Tuba City, Monument Valley and Shiprock. Nine sites are proposed for passive remediation: Rifle (2), Grand Junction, Riverton, Naturita, Slick Rock (2), Durango, and Gunnison. The remaining 10 sites are proposed for no further remediation. After 2006, three sites will remain in the UMTRA Ground Water Project. The other 19 sites will either be closed-out or transferred to the LTSM Program.

Post-2006 Project Scope:

Inspection of the sites, including compliance monitoring of some no further remediation, passive, or active ground water remediation activities will be performed by the LTSM Program. Operation of three active compliance strategy sites will occur through FY 2011. It is anticipated that this project will be completed by end of 2011, and all required UMTRA sites will be transferred to the LTSM Program.

Project End State

Upon completion of the project, NRC will have concurred on the compliance strategy for all sites. Active sites will be transferred to the LTSM Program for long-term operation and monitoring. Natural flushing sites will have institutional controls and periodic compliance monitoring under the LTSM Program until constituents are below EPA standards.

Cost Baseline Comments:

Escalation rate is assumed to be 2.1% per year except for FY 2000 which has an escalation rate of 2.7%. Funding for FY 1999 is not sufficient to allow full-scale start-up of remedial actions at Tuba City and Monument Valley on schedule.

The cost baseline for UMTRA Ground Water is based on the June 1998 Paths to Closure document. The baseline assumes proposed strategies contained in the SOWPs will be implemented. Strategies are: three sites are active remediation, nine sites are passive remediation, and 10 sites require no further remediation.

Safety & Health Hazards:

The primary hazard to the public associated with the UGW project is the ground water underlying each of the sites. Consumption of ground water with concentrations above MCLs would result in an unacceptable risk to human health.

Typical worker hazards associated with monitoring and fieldwork include: driving on a variety of road surfaces and traffic conditions; injuries from lifting; chemical handling; slips, trips, and falls; working over or near water where danger of drowning exists; and noise from gasoline engine powered equipment.

Hazards to the environment are associated with installation of monitor wells and active remediation technologies. No endangered species will be impacted. Restoration of the disturbed habitat will occur over several years.

Safety & Health Work Performance:

A readiness review is conducted prior to start of fieldwork. The review includes a review of the safety hazards and controls described in the PSP,

Project Description Narratives

familiarization with local emergency phone numbers, routes to nearby hospital, etc. Required training is identified in the PSP and Work Plans. Field personnel are assigned responsibility for safety. S&H personnel audit field activities to ensure compliance with safety procedures. Industrial safety is the primary safety and health category necessary for work to be performed in a safe manner on the UGW project. The primary hazard is to the worker performing fieldwork. Industrial safety includes machine/electric safety, confined space controls, ensuring safe areas for working, construction safety, and hazardous material handling.

PBS Comments:

Each site has its own set of stakeholders (states: Colorado, Wyoming, Arizona, Utah, New Mexico, Oregon, Pennsylvania, and Texas; Tribes: Arapaho, Shoshone, Navajo, and Hopi) and it is important to balance the needs of one site with another.

The availability of viable clean-up technologies is a concern for the active remediation sites. An Innovative Treatment Remediation Demonstration Committee (ITRD) was formed to evaluate alternatives at the Tuba City site and groundwater extraction methods having the potential to increase yields are being evaluated.

Impacts of this plan from the previous baseline reflects: (1) characterization of the Durango, Gunnison, Lakeview, Naturita, and Slick Rock sites will be delayed and (2) the Tuba City and Monument Valley remedial actions will be initiated at a reduced scale, (3) certain non-site activities such as Cooperative Agreements may not be adequately funded so that the active remedial actions at the Tuba City and Monument Valley sites can stay on schedule.

Baseline Validation Narrative:

Annually, the DOE-GJO conducts a review of the contractors proposed task plan for the upcoming fiscal year. This DOE review includes a bottoms-up analysis of scope, labor, and other direct charges which is presented by the project manager to a team comprised of contracting officers, contracting officers` representatives, other staff members, and management. During the development of the 2006 Plan, the DOE project and support staff work closely with the contractors regarding project direction. The planning document is then reviewed by various members of the DOE staff and forwarded to DOE-AL where a subsequent review takes place. DOE-GJO conducted an internal life-cycle baseline review in February 1999 for the UMTRA Ground Water Program.

General PBS Information

Project Validated?		**Date Validated:**
Has Headquarters reviewed and approved project?	No	
Date Project was Added:	12/1/1997	
Baseline Submission Date:	7/1/1999	
FEDPLAN Project?	Yes	

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Project **AL023 / UMTRA Ground Water**

General PBS Information

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	N	N	N	Y	Y	Y	Y

Project Identification Information

DOE Project Manager: Don Metzler

DOE Project Manager Phone Number: 970-248-7612

DOE Project Manager Fax Number: 970-248-6023

DOE Project Manager e-mail address: DMetzler@doegjpo.com

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	101,807	41,469	143,276	6,132	6,132	6,956	6,956	5,902	13,000	14,400	15,117	10,200	10,200	10,300	9,600
PBS Baseline (constant 1999 dollars)	95,264	33,509	128,773	6,132	6,132	6,956	6,956	5,902	12,658	13,733	14,120	9,332	9,140	9,039	8,252
PBS EM Baseline (current year dollars)	101,807	41,469	143,276	6,132	6,132	6,956	6,956	5,902	13,000	14,400	15,117	10,200	10,200	10,300	9,600
PBS EM Baseline (constant 1999 dollars)	95,264	33,509	128,773	6,132	6,132	6,956	6,956	5,902	12,658	13,733	14,120	9,332	9,140	9,039	8,252

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	10,224	9,907	8,888	6,276	6,174	0	0	0	0	0	0	0	0	0	0	0

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	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (constant 1999 dollars)	8,607	8,169	7,178	4,964	4,591	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	10,224	9,907	8,888	6,276	6,174	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	8,607	8,169	7,178	4,964	4,591	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2011

Current Projected End Date of Project: 9/30/2011

Explanation of Project Completion Date Difference (if applicable):

Original date was intended to be the end of FY 2011. It has been corrected from 9/1/2011 to 9/30/2011.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars): 160,400 **Actual 1997 Cost:** 6,132 **Actual 1998 Cost:** 6,956

Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars): 147,312 **Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):** 3,977

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Project Reconciliation

Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	151,289

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):	35,604	Estimates for remedial action at the Tuba City site have been reduced based on bids received for the
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	115,685	
Additional Amount to Reconcile (+):	0	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**115,685**	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
End of Durango remedial action compliance strategy implementation	AL023-008		11/14/2006								
End of Gunnison remedial action compliance strategy implementatio	AL023-006		4/12/2006								
End of Implementation of Tuba City and Monument Valley remedial a	AL023-009		8/30/2011								
End of Naturita remedial action compliance strategy implementatio	AL023-007		7/3/2008								
End of Slick Rock remedial action compliance strategy implementat	AL023-008		7/2/2007								
LT S&M Completion (If applicable)	AL023-011		9/30/2070								

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Project Mission Complete	AL023-010		9/30/2011								
Start of Durango remedial action compliance strategy implementati	AL023-005		5/20/2003								
Start of Gunnison remedial action compliance strategy implementat	AL023-002		6/12/2002								
Start of Implementation of Tuba City and Monument Valley remedial	AL023-001		7/25/2001								
Start of Naturita remedial action compliance strategy implementat	AL023-003		8/26/2004								
Start of Slick Rock remedial action compliance strategy implement	AL023-004		8/27/2003								
Initiate documentation in PBS			1/15/1996								
Funding for project begins			10/1/1990								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
End of Durango remedial action compliance strategy implementation	AL023-008		Y				2	3	1		
End of Gunnison remedial action compliance strategy implementatio	AL023-006		Y				2	3	1		
End of Implementation of Tuba City and Monument Valley remedial a	AL023-009		Y				2	3	1		
End of Naturita remedial action compliance strategy implementatio	AL023-007		Y				2	3	1		
End of Slick Rock remedial action	AL023-008		Y				2	3	1		

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
compliance strategy implementat											
LT S&M Completion (If applicable)	AL023-011				Y					Y	
Project Mission Complete	AL023-010				Y	Y					
Start of Durango remedial action compliance strategy implementati	AL023-005		Y				2	3	1		
Start of Gunnison remedial action compliance strategy implementat	AL023-002		Y				2	3	1		
Start of Implementation of Tuba City and Monument Valley remedial	AL023-001		Y				2	3	1		
Start of Naturita remedial action compliance strategy implementat	AL023-003		Y				2	3	1		
Start of Slick Rock remedial action compliance strategy implement	AL023-004		Y				2	3	1		
Initiate documentation in PBS											
Funding for project begins				Y							Funding for the UMTRA Ground water project begins

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200
RS														
Assess.	NR	19.00	0.00	19.00	2.00	2.00	2.00	7.00	4.00	1.00		3.00	1.00	1.0
RS														
Cleanup	NR	17.00	3.00	20.00	1.00	2.00	2.00	5.00	4.00	1.00			2.00	1.0

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 20(
Rem. Waste														
Disposed	M3	0.00	67,400.00	67,400.00										

Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
RS													
Assess.	NR	1.00											
RS													
Cleanup	NR	1.00	1.00	1.00					3.00				
Rem. Waste													
Disposed	M3								13,000.00	54,400.00			

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
RS										
Assess.	NR									24.00
RS										
Cleanup	NR									24.00
Rem. Waste										
Disposed	M3									67,400.00

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
AMLA	0002		GW01-0002 \ AMBROSIA LAKE, NEW MEXICO	Surface and Groundwater/Groundwa	1998	1999	6/1/1998	1998	1998	9/30/1998		N		N

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Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
				ter Plumes										
BSBO	0001	R	(DELETE) BOW - 22 \ BOWMAN UMTRA SITE	/	1988		9/30/1988				1979	Y		N
BSBO	0002		GW02-0002 \ BOWMAN, NORTH DAKOTA	Surface and Groundwater/Groundwater Plumes			10/1/1998			10/1/1998		Y		N
BSBS	0001	R	(DELETE) BEL - 21 \ BELFIELD UMTRA SITE	/	1988		9/30/1988				1979	Y		N
BSBS	0002		GW03-0002 \ BELFIELD, NORTH DAKOTA	Surface and Groundwater/Groundwater Plumes			10/1/1998			10/1/1998		Y		Y
CANO	0002		GW04-0002 \ CANONSBURG, PENNSYLVANIA	Surface and Groundwater/Groundwater Plumes	1998	1999	9/15/1998	1998	1998	9/15/1998		N		N
DURA	0002		GW05-0002 \ DURANGO, COLORADO	Surface and Groundwater/Groundwater Plumes	2002	2002		2006	2006			N		N
FACI	0002		GW06-0002 \ FALLS CITY, TEXAS	Surface and Groundwater/Groundwater Plumes	1997	1997	5/29/1997	1998	1998	4/8/1998		N		Y
GJUS	0002		GW07-0002 \ GRAND JUNCTION, COLORADO	Surface and Groundwater/Groundwater Plumes	1999	1999	2/12/1999	1999	1999	4/6/1999		N		N
GRRI	0002		GW08-0002 \ GREEN RIVER, UTAH	Surface and Groundwater/Groundwater Plumes	2004	2004		2005	2005			N		N
GUMS	0002		GW09-0002 \ GUNNISON, COLORADO	Surface and Groundwater/Groundwater Plumes	2000	2000		2000	2000			N		N

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Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
LAKE	0002		GW10-0002 \ LAKEVIEW, OREGON	Surface and Groundwater/Groundwater Plumes	2004	2004	9/3/1999	2005	2005	9/3/1999		N		N
LOWM	0002		LOWMAN, IDAHO	Surface and Groundwater/Groundwater Plumes	1996		12/1/1995	1996		12/1/1995		Y		N
MAMS	0001	R	(DELETE) MAY - 14 \ MAYBELL UMTRA SITE	/	1989		9/30/1989				1978	Y		N
MAMS	0002		GW11-0002 \ MAYBELL, COLORADO	Surface and Groundwater/Groundwater Plumes	1995		9/30/1995	1997		4/21/1997		Y	Approved	N
MEHA	0002		GW12-0002 \ MEXICAN HAT, UTAH	Surface and Groundwater/Groundwater Plumes	1998	1998	8/3/1998	1999	1999	9/30/1999		N		N
MOVA	0002		GW13-0002 \ MONUMENT VALLEY, ARIZONA	Surface and Groundwater/Groundwater Plumes	1998	1998	6/25/1998	2011	2011			N		N
NASI	0001	R	(DELETE) NAT - 17 \ NATURITA UMTRA SITE	/	1989		9/30/1989				1978	Y		N
NASI	0002		GW14-0002 \ NATURITA, COLORADO	Surface and Groundwater/Groundwater Plumes	2003	2003		2004	2004			N		N
NERS	0001	R	(DELETE) RFL - 06 \ NEW RIFLE UMTRA SITE	/	1987		9/30/1987				1978	Y		N
NERS	0002		GW15-0002 \ RIFLE (NEW), COLORADO	Surface and Groundwater/Groundwater Plumes	1999	1999	9/30/1999	1999	1999	9/30/1999		N		N
OLNC	0001	R	(DELETE) SRK - 11 \ SLICK ROCK - (NORTH CONTINENTAL) UMTRA SITE	/	1987		9/30/1987				1978	Y		N

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OLNC	0002		GW16-0002 \ SLICK ROCK,COLORADO - (NORTH CONTINENTAL)	Surface and Groundwater/Groundwater Plumes	2002	2002		2003	2003			N		N
OLRS	0001	R	(DELETE) RFL - 06 \ OLD RIFLE UMTRA SITE	/	1987		9/30/1987				1978	Y		N
OLRS	0002		GW17-0002 \ RIFLE (OLD), COLORADO	Surface and Groundwater/Groundwater Plumes	1999	1999	3/19/1999	1999	1999	7/14/1999		N		N
RIVR	0002		GW18-0002 \ RIVERTON, WYOMING	Surface and Groundwater/Groundwater Plumes	1998	1998	2/25/1998	1998	1998	2/25/1998		N		N
SALC	0002		GW19-0002 \ SALT LAKE CITY, UTAH	Surface and Groundwater/Groundwater Plumes	1998	1998	9/28/1998	1998	1998	9/28/1998		N		N
SHIP	0002		GW20-0002 \ SHIPROCK, NEW MEXICO	Surface and Groundwater/Groundwater Plumes	1999	1999	9/30/1999	2011	2011			N		N
SPOK	0002		GW21-0002 \ SPOOK, WYOMING	Surface and Groundwater/Groundwater Plumes	1997	1997	5/31/1997	1997	1997	5/31/1997		N	Approved	N
TUCI	0002		GW22-0002 \ TUBA CITY, ARIZONA	Surface and Groundwater/Groundwater Plumes	1998	1998	4/15/1998	2011	2011			N		N
UNCC	0001	R	(DELETE) SRK - 11 \ SLICK ROCK - (UNION CARBIDE) UMTRA SITE	/	1987		9/30/1987				1978	Y		N
UNCC	0002		GW23-0002 \ SLICK ROCK, COLORADO - (UNION CARBIDE)	Surface and Groundwater/Groundwater Plumes	2002	2002		2003	2003			N		N

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Technology Needs

Site Need Code: AL-07-09-02-SC

Site Need Name: Hydrologic Performance Monitoring of Engineered Covers

Focus Area Work Package ID: SS-04
Focus Area Work Package: Long-Lived Caps
Focus Area: SCFA
Agree with Technology Link: N
Benefits (Cost, Risk Reduction, Both): Both

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate